

# LECTURE 4: GROWTH FACTS

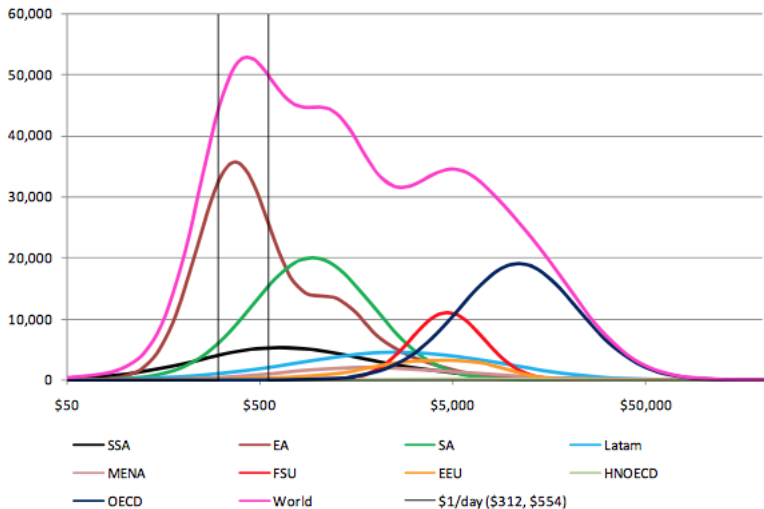
See Barro Chapter 3

Trevor Gallen

Spring, 2015

# WORLD INCOME DISTRIBUTION: 1970

**1970**



# WORLD INCOME DISTRIBUTION: 1970

- ▶ Why are poor people poor?
- ▶ 80% of the answer is they live in poor countries
- ▶ 20% of the answer is the distribution of income is uneven
- ▶ Economic growth is determinant of income inequality

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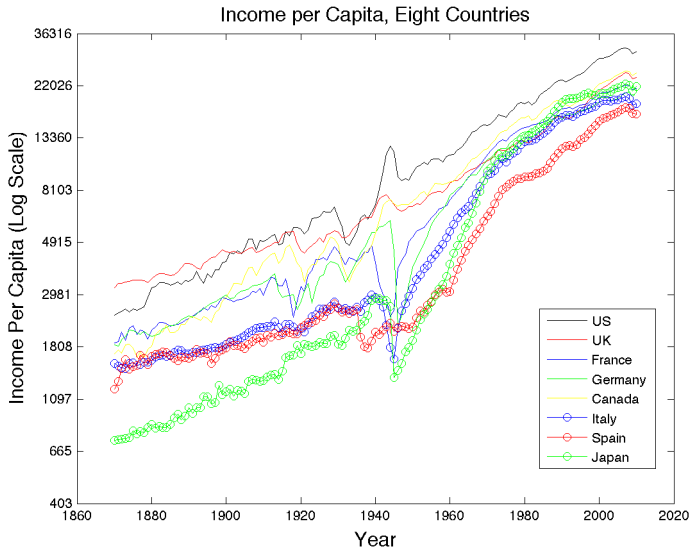
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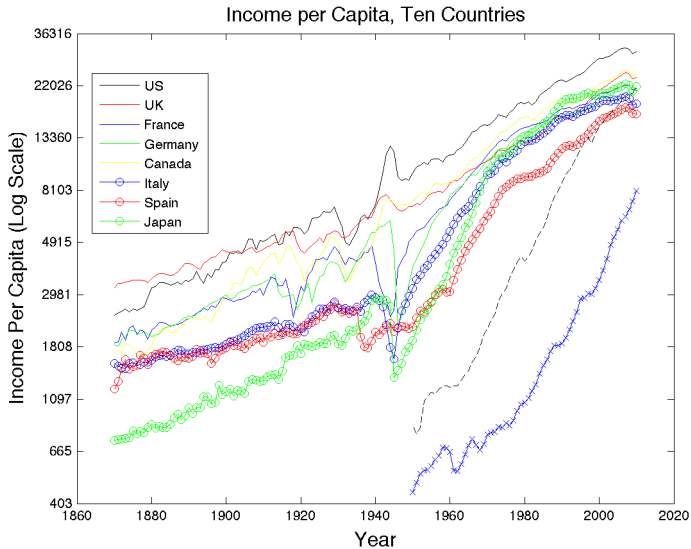
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- ▶ We'll come back to growth

# CROSS-COUNTRY PER-CAPITA GDP



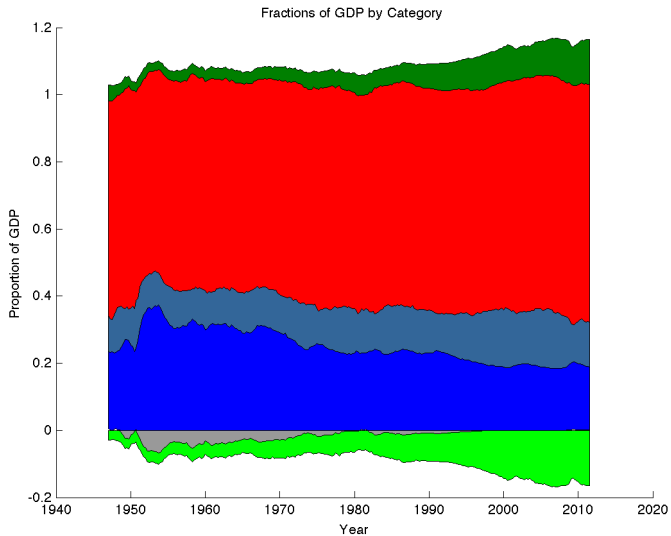
Note the log scale!

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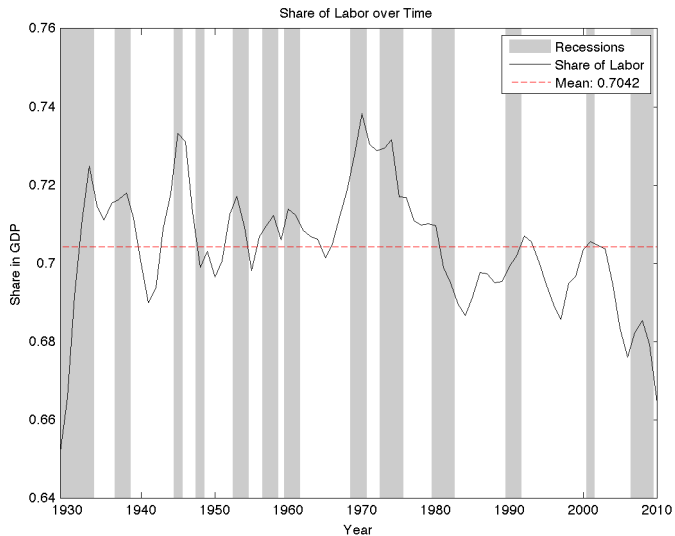


Add South Korea and China

# GREAT RATIOS



# LABOR'S SHARE

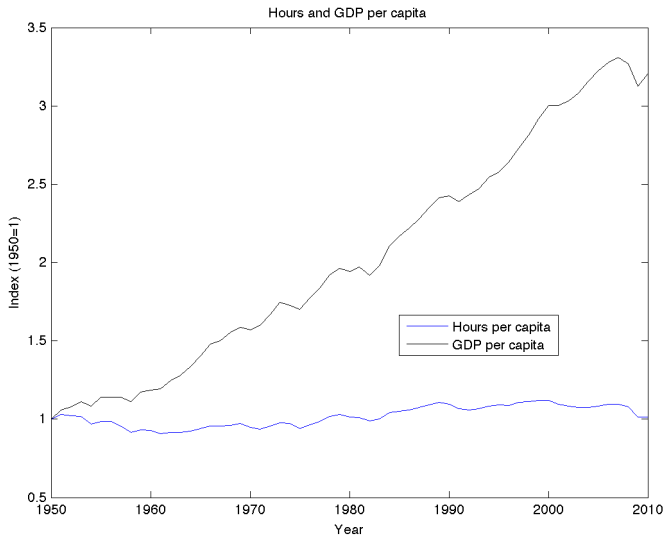


# LABOR'S SHARE, UPDATED

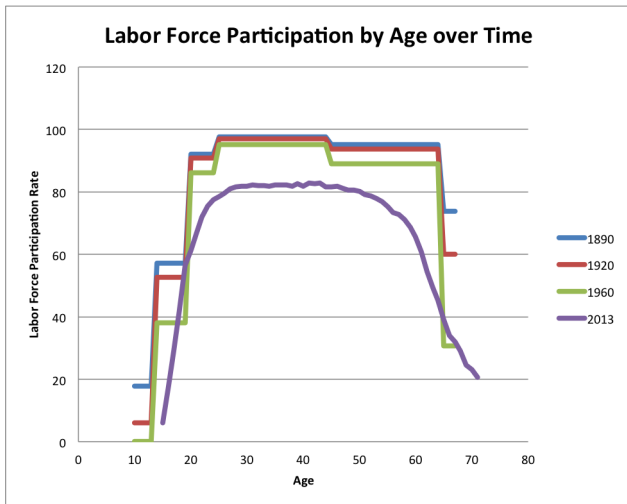
Updated, Quarterly Version: 1947:Q3-2015:Q3



# LABOR HOURS AND GDP

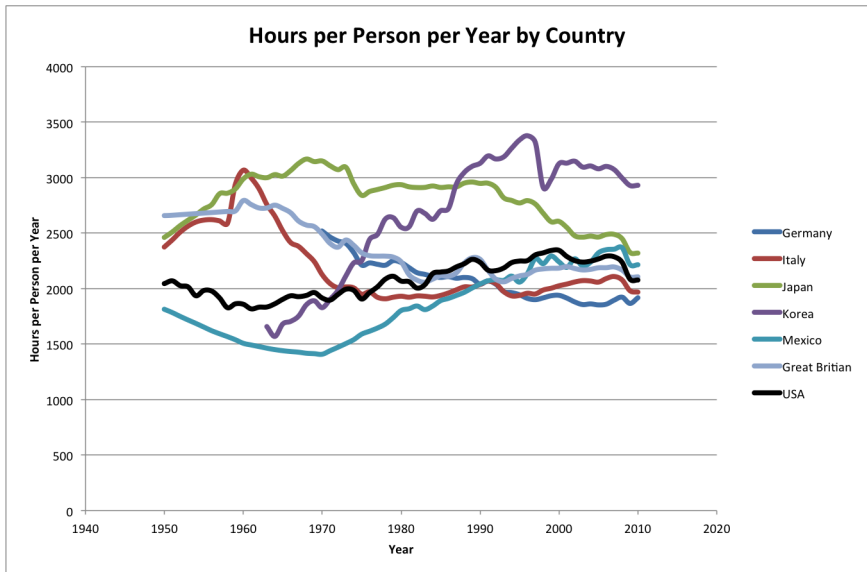


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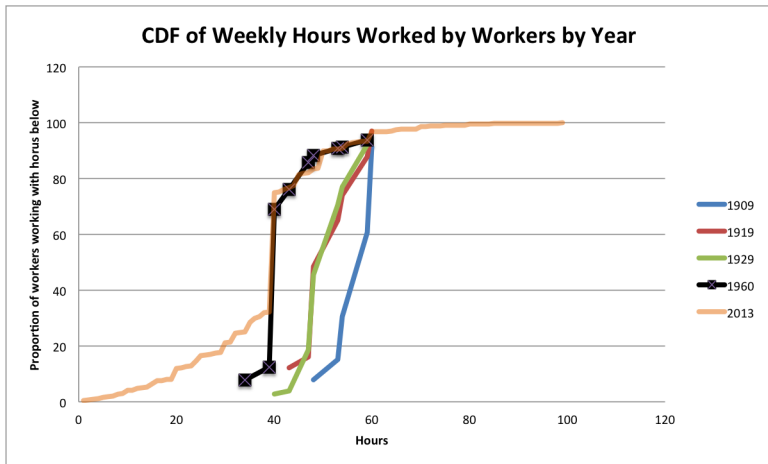




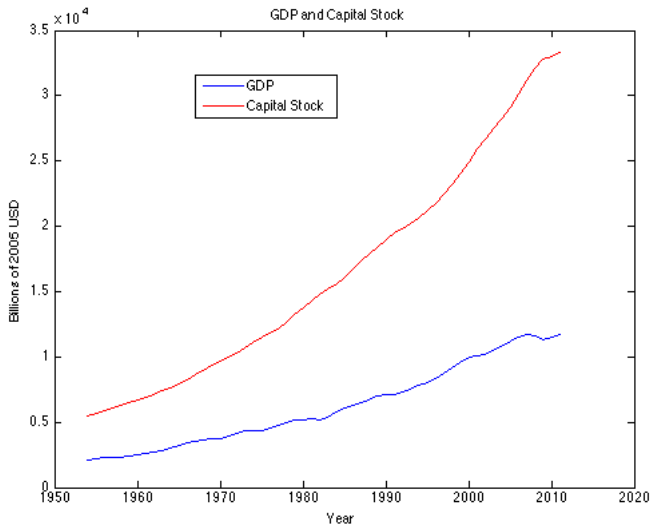
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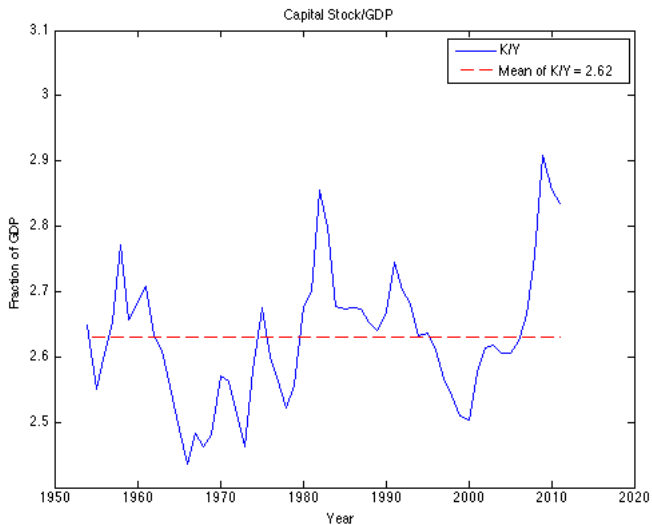
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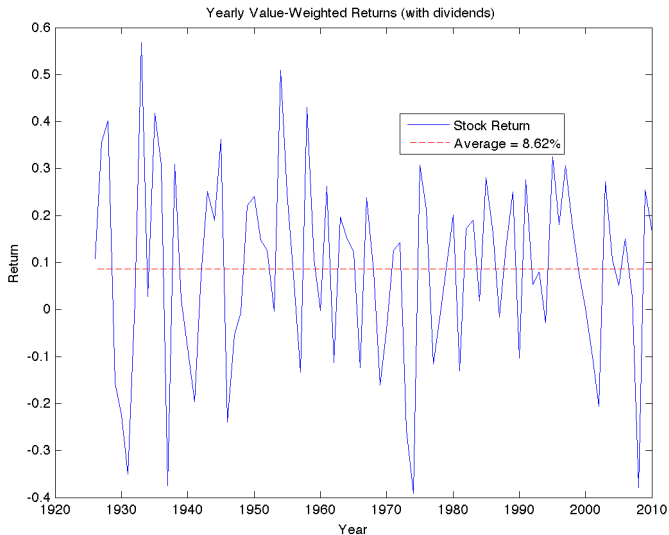
# GDP AND CAPITAL STOCK



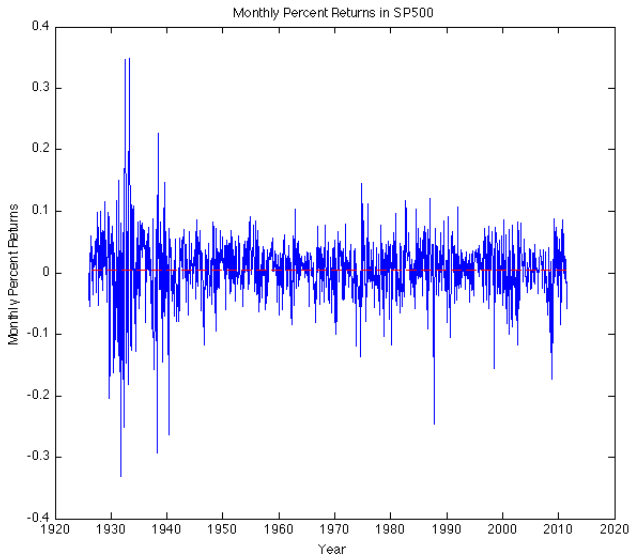
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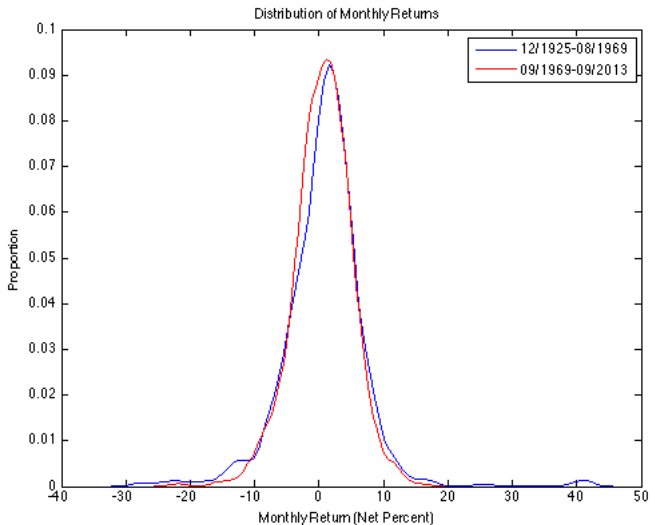
# INTEREST RATES-I



# INTEREST RATES-II

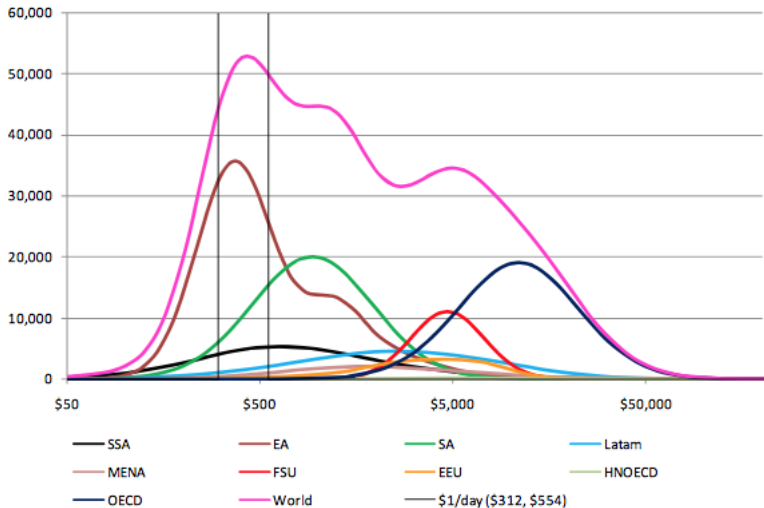


# INTEREST RATES-III



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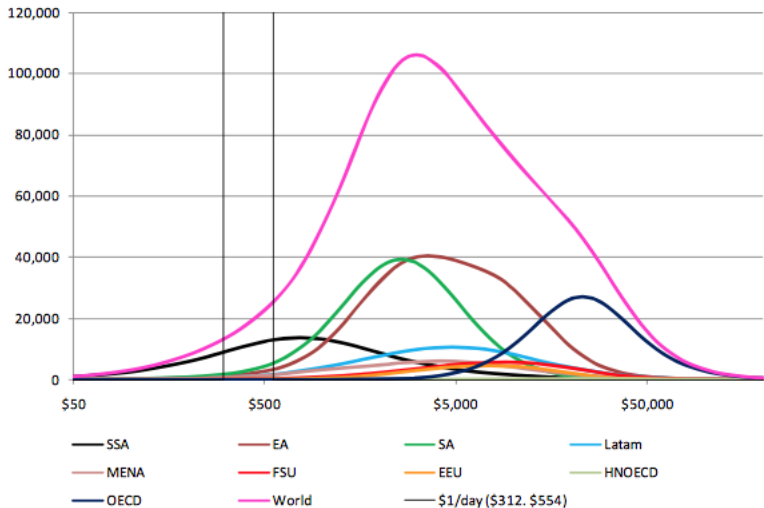
**1970**



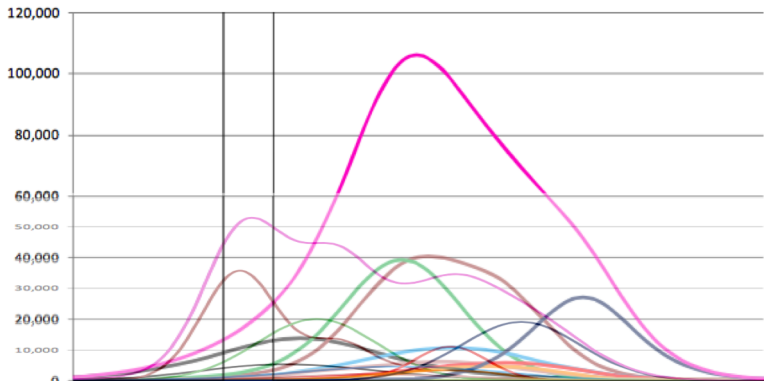


# WORLD INCOME DISTRIBUTION: 2006

2006

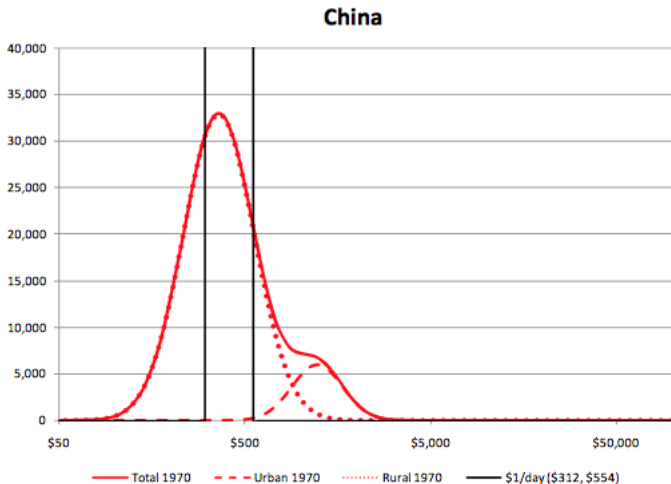


# WORLD INCOME DISTRIBUTION: 1970 & 2006



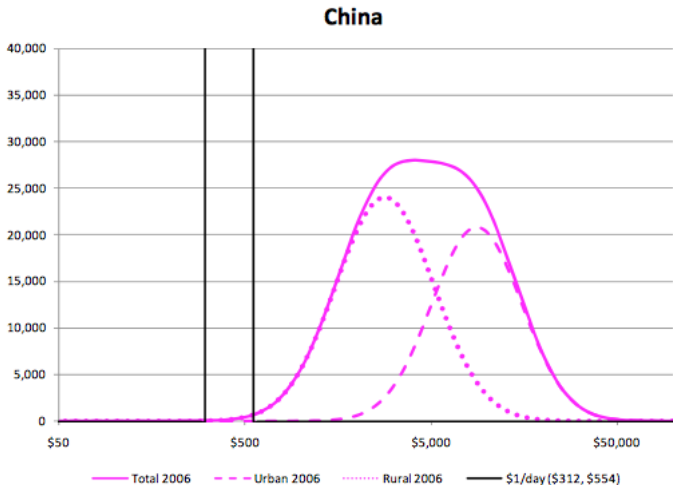
Pinkovskiy & Sali-i-Martin, 2009

# CHINESE INCOME DISTRIBUTION: 1970



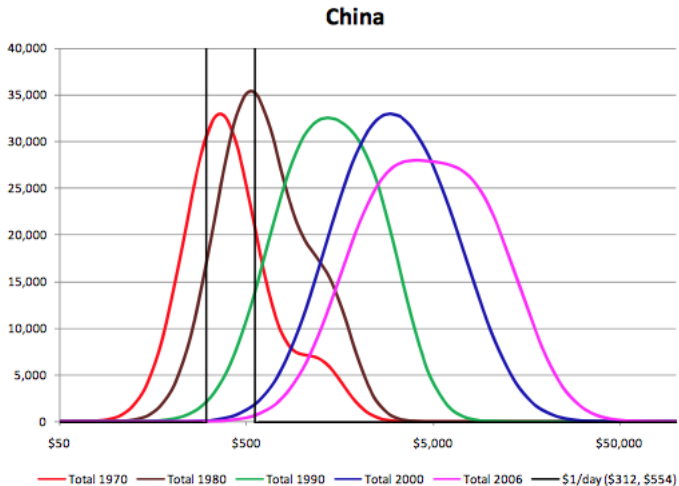
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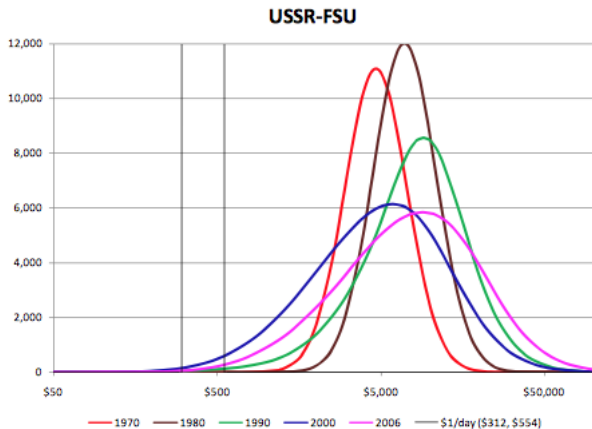
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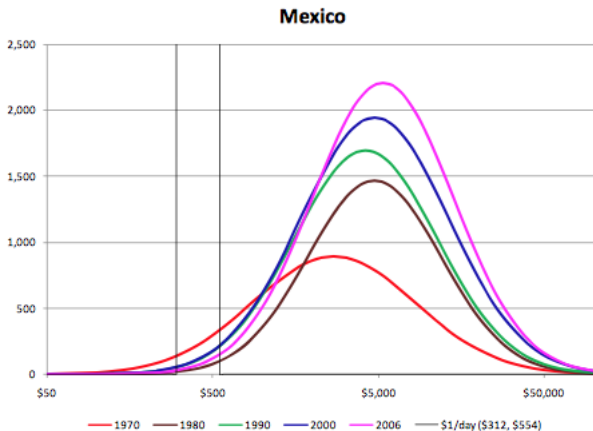
Pinkovskiy & Sali-i-Martin, 2009

# SOVIET INCOME DISTRIBUTIONS



Pinkovskiy & Sali-i-Martin, 2009

# MEXICAN INCOME DISTRIBUTIONS



Pinkovskiy & Sali-i-Martin, 2009

## U.S. GROWTH RATES

Years	Growth Rate	GDP/Capita
1800-1820	0.24	2,159
1820-1840	1.09	2,682
1840-1860	1.42	3,555
1860-1880	1.77	5,052
1880-1900	1.26	6,490
1900-1920	1.54	8,809
1920-1940	1.17	11,121
1940-1960	2.43	17,974
1960-1980	2.50	29,475
1980-2000	2.20	45,538
2000-2010	1.41	50,857

1990 G-K, inflated to 2010



## SOME TAKEAWAYS

1. World income distribution is very uneven
2. Most inequality comes from between-country inequality, not within-country
3. Advanced countries seem to grow at roughly the same rate
4. Some countries catch up to that
5. Consumption, investment, etc. are fairly constant
6. Growth is small, but has grown
7. Labor's share has been constant, compared to growth
8. Capital vs. GDP ratio has been constant, compared to growth
9. Labor hours have been constant, compared to wages
10. Interest rates are volatile, but stationary
11. U.S. growth from 1800-2010 has been about 1.5% per year
12. This has generated a per-capita increase in GDP of 25x
13. Labor hours haven't gone down over last 60 years in U.S.
  - ▶ But they have in Europe...
  - ▶ And they have for the elderly and young...
  - ▶ And they have for men...
  - ▶ And they have for workers...

# MACROECONOMICS

- We have a lot of facts! In per-capita terms:

1. Labor is constant:

$$L_t = \bar{L}$$

2. Wages as a fraction of GDP are constant:

$$\frac{w_t L_t}{Y_t} = s_L$$

3. GDP grows at a constant rate:

$$Y_{t+1} = (1 + \gamma) Y_t$$

4. The interest rate is a constant:

$$r_t = \bar{r}$$

5. Capital as a fraction of GDP is constant

$$\frac{K_t}{Y_t} = \bar{\Theta}$$

6. Capital income as a fraction of is constant:

$$\frac{r_t K_t}{Y_t} = s_K$$

## LET'S START MACRO...

- ▶ We want to build a model to explain all these facts together
- ▶ Note nothing in the above should be able to explain business cycles because they're all “constant” growth relationships
- ▶ If we can use it to understand or even predict the outcome of business cycles as well as growth, this is a success.